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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,777	10/19/2001	Chia-Hsin Li	AP112HO	7340

20178 7590 01/03/2006

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EXAMINER	
CARBONELLO, MICHAEL J	
ART UNIT	**PAPER NUMBER**
2622	

DATE MAILED: 01/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/029,777	LI ET AL.	
	Examiner	Art Unit	
	Michael J. Carbonello	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/28/2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 October 2001* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1) 10/19/2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment was received on 12/05/2005 and has been entered and made part of record; claims 1-23 are pending.

Response to Arguments

2. Upon review of the current amendments, and the current art of record, the examiner believes that the references of Zietlow et al (5,012,434) would be anticipated at the time of invention and would have been obvious a in view of Zietlow et al over Mikkelson et al.

3. Applicant's arguments, filed on 12/05/2005, have been fully considered, but they are not persuasive.

4. In response to applicant's claim filed on 12/05/2005, regarding claims 1, 8, and 15; which was previously cited in the office action filed 08/25/05, as being anticipated by Zietlow et al. The applicant highlights having a "second memory smaller than said first memory space." The examiner believes that the applicant is exercising design choice since two memories of equal size would be able to accomplish the same goal as two memories of different sizes with the second memory being smaller than the first. Also as is cited in claim 1; "transferring the next sub-image tile from said first memory space to said second memory space." Further since data is being transferred from the larger memory space to the smaller memory space in the form of tiles there is no reason why the two memory sizes couldn't be of equal size; as is disclosed by Zietlow et al.

5. The applicant continues to highlight; "sub-dividing algorithm to said target image." Which is used to "generate an array of rows and columns of sub image tiles." As is disclosed in figure 3, page of data is divided into rows and columns (DA-DZ), and is then further divided into smaller rows and columns (s1-s5 and z1-z5). Using the broadest reasonable interpretation allowable, this would be a sub-dividing algorithm. The fact that the divisions of the image are predefined does not mean that they do not undergo a sub-division algorithm. An algorithm is merely a step–by-step procedure for solving a problem that has a finite number of steps. As is stated above Zietlow et al divides the image into smaller tiles in a manner that would constitute a sub-division algorithm.

6. Next the applicant highlights; "a communication link coupling said first memory space to said second memory space." Bit Pattern Page memory A and Bit Pattern Page memory B are connected via a communication link. The link happens to be the page rotation module. Further Zietlow et al discloses in column 3, lines 24-30; "The write address logic unit WAL and the read address logic unit RAL are in communication with the two bit pattern page memories A and B through the common memory control unit MC, and function to drive the bit pattern page memories such that one of the memories A and B is in the read mode while the other is in its write mode." Using the broadest reasonable interpretation allowable it is possible that information is passed form one page memory location to the second location based on the assumption that one is reading information while the other is writing information.

7. Further the applicant highlights; "assigning each printable sub-image block a coordinate parameter identifying a target location within a composite memory space." The applicant further points out that data should be transferred in turn from the first memory location to the second. The examiner believes that the applicant is again exercising design choice. The first and second memory spaces are of equal size it is entirely plausible that whatever information fits in the first memory location will fit in the second memory location. The examiner believes it is equally effective to transfer the image in larger groups that transfer the image in tiles in turn. Further, the applicant does not disclose in the Remarks what advantage is gained by loading data in turn, or what disadvantages there are to loading data in larger groups as is done by Zietlow et al; the applicant merely expresses the point that is different from the application.

8. The applicant highlights; "correlates said composite memory space with the printable space on a printing media." While the applicant is correct that the preferred embodiment of this invention is designed for rotation of characters, the application toward the rotation and reassignment of location of images would similar if not identical for an image. While Figures 7-11 show the letter "E" being rotated; the same procedure could be used to rotate an image. Instead of there being "unused" boxes (like A, F, L, Q or V) each box could represent a small portion of a larger image, with each small section transferred to a new position the image would be rotated 90°. A basic example of an image or text being rotated would be similar to the use of "Portrait" and "Landscape" functions available in Microsoft Word, where both characters and images

can be rotated. The end result of Zietlow et al, while character based, is that an entire page of information is rotated as described by applicant.

9. [Amended claims 21-23 response below]

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-5, 7-12 and 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Zietlow et al.

11. Regarding claim 1, 8 and 15, Zietlow et al discloses in Figure 1; "A computing system for printing a target image, comprising: a first memory space for storing said target image, a second memory space smaller than said first memory space;

a data processing unit for applying a sub-dividing algorithm to said target image to generate an array of rows and columns of sub-image tiles, each of said sub-image tiles being sized to be storable within a predetermined amount of memory capacity not greater than that of said second memory space, said target image being the composite of said sub-image tiles;

a communication link coupling said first memory space to said second memory space for transferring each of said sub-image tiles in turn from said first memory space to said second memory space;

said data processing unit further implementing an image generating routine for generating a printable sub-image block of each sub-image tile within said second memory space, assigning each printable sub-image block a coordinate parameter identifying a target location within a composite memory space, and transferring each printable sub-image block from said second memory space to a printer driver routine prior to transferring the next sub-image tile from said first memory space to said second memory space;

said printer driver routine correlates said composite memory space with the printable space on a printing media and controls the printing of each of said sub- image blocks to locations within said printing media in accordance with their respective coordinate parameter."

12. With respect to claim, in figure 1, using the broadest reasonable interpretation "Bit Pattern Page Memory A", and "Bit Pattern Page Memory B" are a first memory space for storing sad target image, and a second memory space for storing said target image respectively. Further, with respect to claim 1, using the broadest reasonable interpretation, "Page Rotation Module" is a type of "data processing unit for applying a sub dividing algorithm."

13. Further with respect to claim 1, the Device Control DC, along with the CPU and Bus Control, and Print Control and Data Control, comprise a data unit further implementing an image generating a printable sub image block of each sub image tile, and a printer device routine that correlates said composite memory space with the printable driver media and controls of printing each sub-image blocks.

14. Regarding claims 2, 9 and 16, Zietlow et al discloses the methods and device described above. Zietlow et al further discloses figures 7-11; "wherein said image generating routine is printing a rotated representation of said target image by assigning the coordinate parameter of each said sub-image blocks such that the assigned coordinate parameter corresponds to a shifting of each sub-image tile within said array of sub-image tiles by a predetermined offset amount; and rotating each of said sub-image blocks prior to sending them to said printer driver." With respect to claims 2, 9 and 16, the labels DA-DZ are a type of "coordinate parameter."

15. Regarding claims 3, 10 and 17, Zietlow et al discloses the methods and devices described above, and further discloses in figures 7-11, "wherein said shifting of said sub-image tiles within said array of sub-image tiles corresponds to a coordinate shift within said array such that a target sub-image tile at a first corner within said array is shifted to an adjacent corner and all other sub-image tiles within said array are shifted accordingly to maintain a constant positional relation with said target sub-image tile."

16. Regarding claim 4, 11, and 18, Zietlow et al discloses the methods and device described above. Zietlow et al further teaches, in column 1, lines 48-55; "wherein said sub-image tiles are transferred from said first memory space to said second memory space in a sequence order beginning with said target sub-image tile followed by adjacent sub-image tiles, in turn." With respect to claim 4, 11 and 18, using the broadest reasonable interpretation, the two page memories, and alternately write-in, read-out, are methods of transferring from first memory to second memory in a sequence of beginning with said target sub-image tile followed by adjacent sub-image tiles, in turn.

17. Regarding claim 5, 12 and 19, Zietlow et al discloses the methods and device described above. Zietlow et al further teaches, in column 4, lines 52-60; "printing a non-rotated representation of said target image by sending each sub-image tile from said array of sub-image tiles in alignment with each row of said array in succession; and printing a rotated representation of said target image by sending each sub-image tile from said array of sub-image tiles in alignment with each column of said array in succession." With respect to claim 5, 12 and 19, Chart I, a rotation of 0 degrees would be a non-rotated image, while a 90, 180, and 270 degrees would be various rotated representations of a target image.

18. Regarding claim 7 and 14, Zietlow et al discloses the methods and devices described above, and further discloses in figure 1; "wherein the size of said second memory space is insufficient for storing said target image in its entirety." With respect to claim 7 and 14, since neither a specific image size nor a specific memory size are declared, by either the applicant or Zietlow et al, using the broadest reasonable interpretation the Bit Pattern Page memories, could be memory amounts insufficient for storing a target image.

19. Regarding claims 21-23, Zietlow et al discloses the methods and devices described above, and further discloses in column 1, lines 35-38 and also lines 48-53; "wherein said target image in said first memory space encompasses an entire page of said printing media." Using the broadest reasonable interpretation Zietlow et al has discloses a method whereby the rotation of data is for an entire page of data for the printing media.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claims 6, 13, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zietlow et al in view of Mikkelsen et al. Zietlow et al discloses the methods and devices described above. Zietlow et al further discloses in figure 1, Matrix Memory MXM, Bit Pattern Page Memory A, and Bit Pattern Page Memory B. Using the broadest reasonable interpretation these various memories would define a maximum image area corresponding to the amount of memory capacity. Zietlow et al further teaches in figure 3, breaking up the image area into sub sections (DA-DZ), and further breaking said sub-sections into smaller sub-sections (i.e. S1-S5 and Z1-Z5). Using the broadest reasonable interpretation these sections, would be a method of "assigning new coordinates to the newly created sub-image tiles in relation to their relative positions, and linking them together to form a growing array of sub-image tiles." Zietlow et al does not disclose,

"(a) comparing its height, defined as its horizontal side; defined as its vertical side, to its width,

(b) if its height is greater than its width, then splitting said target image horizontally along its vertical side to create an upper sub-image tile and a lower sub-image tile of substantially equal size;

(c) if its width is greater than its height, then splitting said target image vertically along its horizontal side to create a left sub-image tile and a right sub-image tile of substantially equal size;

(d) if its width and height are of equal size then splitting said target image along one of its vertical and horizontal sides to create two sub-image tiles of substantially equal size;

(f) traversing said growing array of sub-image tiles, one tile at a time, and examining each in turn, the examining of each sub-image tile including the following sub-steps:

(i) checking if the area of the examined sub-image tile is greater than said maximum image area;

(ii) if the area of the examined sub-image tile is not greater than said maximum image area, then checking if a next linked sub-image tile exists in said growing array, if a next linked sub-image tile does not exist then terminating the execution of step (f), otherwise returning to step (i) to examine the next linked sub-image tile in said growing array;

(iii) if the area of the examined sub-image tile is greater than said maximum image area, then comparing its height, defined as its vertical side, to its width, defined as its horizontal side;

(iv) if the height of the examined sub-image tile is greater that its width, then splitting the examined sub-image tile horizontally along its vertical side to create a new upper sub-image tile and a new lower sub-image tile of substantially equal size,

assigning the coordinate location of the originally examined sub-image tile to said new upper sub-image tile, assigning new coordinates to said new lower sub-image tile in relation to its position relative to said new upper sub-image tile, and inserting said new lower sub-image tile in said growing array between the location of the originally examined sub-image tile and the next linked sub-image tile to be examined;

(v) if the width of the examined sub-image tile is greater than its height, then splitting the examined sub-image tile vertically along its horizontal side to create a new left sub-image tile next and a new right sub-image tile, assigning the coordinate location of the originally examined sub-image tile said new left sub-image tile, assigning new coordinates to said new right sub-image tile in relation to its position relative to said new sub-image tile, and inserting it in said growing array between the location of the originally examined sub-image tile and the next linked sub-image tile to be examined; and

(vi) returning to step (i) and proceeding to examine the first sub-image tile in said growing array."

21. Mikkelson discloses in column 2, lines 11-13, "In the proffered embodiment, the regions are fixed in equal sizes in an NxM matrix, but they need not be for purposes of the invention." Using the broadest reasonable interpretation of the regions could be divided horizontally or vertically, repeatedly as needed based on the target image's size. Therefore, it would have been obvious at the time of invention to one of ordinary skill in the art to combine Zietlow et al with Mikkelsen et al to generate a method that determines the amount of available space in memory, and based on said free space

divides the target image into sub-regions (or tiles), either horizontally or vertically based on said target image's orientation. The motivation is that dividing and image in smaller sub-sections will allow a system with limited amounts of available memory to process larger pictures, by processing a series of smaller pictures.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

22. Charrier et al discloses, "The method for primary processing according to the invention takes into account a minimum dimension and a partition of a set of data into so-called "initial elementary" subsets (K.sub.i). It includes:

a) for each elementary subset which size is larger than the minimum dimension, one iteration of: a division suitability estimation step, and when appropriate, a step of "supplementary partitioning" of the said subset,

b) a "construction" step of a global multidimensional mapping and non-linear mapping, the restrictions of the global mapping to the elementary subsets (K.sub.i) being composed of elementary mappings, the fixed point of the global mapping constituting an approximation of all or part of this set, the set of parameters (a.sub.i, b) determined by the restrictions constituting an approximation of the said set of data."

23. Plakosh et al discloses, "In a high-speed digital printing apparatus having duplex capability, second-side images must be rotated."

Hamada et al discloses, "A word processor with capability of printing characters in rotated orientations as well as in the normal upright orientation."

THIS ACTION IS MADE FINAL.

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Carbonello whose telephone number is (571) 272-0625. The examiner can normally be reached on Monday - Friday 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on (571) 272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael J Carbonello
Examiner
Art Unit 2622

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